Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Original) A device, comprising:

a fiber loop;

an optical coupler in said fiber loop to couple input light into said fiber loop as two counter-propagating waves in said loop and to couple light in said loop out as an output beam;

a polarization device in said fiber loop to change polarization of light in said loop to achieve a maximum power level and a minimum power level in said output beam;

an optical detector to receive said output beam to produce a detector signal; and

a circuit to process said detector signal to produce an output indicative of a signal-to-noise ratio or a degree of polarization in said input light from said maximum and minimum power levels.

2. (Original) The device as in claim 1, wherein said circuit controls said polarization device to systematically change said polarization to produce said maximum oand said minimum power levels in said output beam.

3. (Original) The device as in claim 1, wherein said polarization device is a polarization scrambler which randomly changes said polarization.

4. (Original) The device as in claim 1, further comprising a tunable optical filter to filter said input light and direct filtered input light to said optical coupler for coupling into said fiber loop.

Claims 5-15: Canceled.

16. (Original) A device, comprising:

a polarization device to change polarization of received light to produce output light to find a maximum power level and a minimum power level of each WDM channel of different WDM channels in said received light;

a WDM demultiplexer to receive said output light to separate different WDM channels in said output light;

a plurality of polarization beam splitters in optical paths of said different WDM channels, respectively, wherein each polarization beam splitter splits a corresponding WDM channel into two monitor beams that are orthogonally polarized;

a plurality of filters disposed in one of said two monitor beams for said different WDM channels, respectively, each operable to produce a difference in power between noise power levels in said two monitor beams for each WDM channel without affecting signal power levels in said each WDM channel in said two monitor beams;

a plurality of pairs of optical detectors provided for different WDM channels, wherein two optical detectors in each pair are positioned to respectively receive said two monitor beams for a corresponding WDM channel to produce two detector outputs for said WDM channel; and

a control unit to produce said control signal and to process detector signals to produce an output for each WDM channel indicative of a signal-to-noise ratio or a degree of polarization in said each WDM channel.

17. (Original) The device as in claim 16, wherein said polarization device is a polarization scrambler which randomly changes said polarization in searching for said maximum power level and said minimum power level.

18. (Original) The device as in claim 16, wherein said polarization device is a polarization controller.

19. (Original) A device, comprising:

a polarization device to change polarization of received light to produce output light to find a maximum power level and a minimum power level of each WDM channel of different WDM channels in said received light;

a polarization beam splitter to split said output light into first and second beams of orthogonal polarizations;

a first WDM demultiplexer to receive said first beam to separate different WDM channels in said first beam;

a second WDM demultiplexer to receive said second beam to separate different WDM channels in said second beam, wherein said first WDM demultiplexer is different from from said second WDM demultiplexer in way that a noise power level in an output WDM channel from said first WDM demultiplexer is different from a noise power level in the same WDM channel from said second WDM demultiplexer;

a first set of optical detectors located to receive different WDM channels from said first WDM demultiplexer;

a second set of optical detectors located to receive different WDM channels from said second WDM demultiplexer; and

a control unit to produce said control signal and to process detector signals from said first set and said second set of optical detectors to produce an output for each WDM channel indicative of a signal-to-noise ratio or a degree of polarization in said each WDM channel.

20. (Original) The device as in claim 19, wherein said polarization device is a polarization scrambler which randomly

changes said polarization in searching for said maximum power level and said minimum power level.

21. (Original) The device as in claim 19, wherein said polarization device is a polarization controller.

22. canceled.

23. Canceled.

24. Canceled.

25. Canceled.

26. (Currently Amended) **A device, comprising:**

a polarization element operable to adjust optical polarization of input light;

a polarizer to receive light from said polarization element to produce a transmitted beam;

an optical detector to receive said transmitted beam from said polarizer; and

a signal processing circuit to process output of said optical detector to extract information on a state of polarization of said input light,

~~**The device as in claim 22,**~~ wherein said polarization element comprises:

first and second polarization rotators sequentially positioned in an optical path;

a quarter waveplate in said optical path to receive output light from said first and said second polarization rotators; and

third and fourth polarization rotators sequentially positioned in said optical path to receive output light from

said quarter waveplate, wherein each polarization rotator is adjustable in response to a control signal.

27. (Original) The device as in claim 26, wherein said polarization element further comprises an input optical polarizer in said optical path in front of said first and said second polarization rotators.

28. (Original) The device as in claim 26, wherein each polarization rotator is a magneto-optic (MO) rotator.

29. (Original) The device as in claim 26, wherein each rotator is responsive to a first control signal to rotate the polarization by +22.5°, and responsive to a second control signal to rotate the polarization by -22.5°, wherein said first and said second rotators are rotated in the same direction to produce a net rotation of 45°, and said third and said fourth rotators are rotated in the same direction to produce a net rotation of 45°, and wherein said first and said second rotators are rotated in the opposite directions to produce a net rotation of 0°, and said third and said fourth rotators are rotated in the opposite directions to produce a net rotation of 0°.

30. (Original) A method, comprising:

obtaining a monitor beam from a fiber line carrying WDM channels;

spatially separating WDM channels from said monitor beam;

separating each WDM channel into a first beam and a second beam with orthogonal polarizations in a way that noise power level in said first beam is different from a noise power level in said second beam;

adjusting polarization of each WDM channel prior to separation into said first and said second beams to find a

maximum power level and a minimum power level in each of said first and said second beams; and

determining both a signal-to-noise ratio and a degree of polarization of each WDM channel in said monitor beam.